

WHAT IS CLAIMED IS:

1. A composition for modulating a physiological reaction or inducing an immune response in human or animal after oral administration, said composition comprising:

- a) at least one physiologically active agent;
- b) at least one neutralizing agent effective to increase pH in digestive system of said human or animal to prevent denaturation of said physiologically active agent;
- c) at least one inhibitor of digestive enzymes to prevent enzymatic digestion of said physiologically active agent, said inhibitor being selected from the group consisting of homogenized legumes, oilseed or pulse grains; and
- d) at least one uptake-increasing agent capable of increasing intestinal absorption of said physiologically active agent.

2. The composition of claim 1, wherein said neutralizing agent is at concentration between 1% to 60% w/w, said inhibitor is at concentration between 1% to 50% w/w, and said uptake increasing agent is at concentration between 0.1% to 50% w/w.

3. The composition of claim 1, wherein said physiologically active agent is selected from the group consisting of therapeutic agents, nutritional products, mucopolysaccharides, lipids, carbohydrates, steroids, hormones, growth hormones (GH), growth hormone releasing hormones (GHRH), epithelial growth factors, vascular endothelial growth and permeability factors (VEGPF), nerve growth factors, cytokines, interleukins, interferons, GMCSF, hormone-like products, neurological factors, neurotropic factors, neurotransmitters, neuromodulators, enzymes, antibodies, peptides, proteic fragments, vaccines, adjuvants, antigens,

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immune stimulating or inhibiting factors, heomatopoietic factors, anti-cancer products, anti-inflammatory agents, anti-parasitic compounds, anti-microbial agents, nucleic acid fragments, plasmid DNA vectors, cell proliferation inhibitors or activators, cell differentiating factors, blood coagulation factors, immunoglobulins, negative selective markers or "suicide" agents, toxic compounds, anti-angiogenic agents, polypeptides, anti-cancer agents, acid production drugs, and histamine H₂-receptor antagonists.

4. The composition of claim 1, wherein said neutralizing agent is in an amount sufficient to neutralize acidic degradation in said human or animal digestive system and to allow delivery of said physiologically active agent to intestine of said human or animal.

5. The composition of claim 1, wherein said neutralizing agent is selected from the group consisting of anti-acids, sodium bicarbonate, sodium carbonate, sodium citrate, calcium phosphate, calcium carbonate, magnesium salts, magnesium carbonate, magnesium trisilicate, magnesium hydroxide, magnesium phosphate, magnesium oxide, bismuth subcarbonate, and combinations thereof.

6. The composition of claim 1, wherein said neutralizing agent is at least one of sodium carbonate at a concentration of 10% to 20% w/w, and calcium carbonate at concentration of 10% to 20% w/w of the composition.

7. The composition of claim 1, wherein said inhibitor is in an amount sufficient to inhibit degradation of said physiologically active agent by digestive enzymes in said human or animal digestive system and to allow delivery of said physiologically active agent to intestine of said human or animal.

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8. The composition of claim 1, wherein said inhibitor of digestive enzymes is selected from the group consisting of anti-protease, egg albumin, plant-derived inhibitors from oilseed, soybean, kidney bean, faba bean, rice bran, wheat bran, ethylenediamine tetraacetate, alpha-1-antitrypsin, albumin, ovalbumin, and proteosomes.

9. The composition of claim 1, wherein said inhibitor comprises at least one of a pepsin inhibitor and an enteropeptidase inhibitor.

10. The composition of claim 1, wherein said inhibitor is albumin at a concentration between 1% to 20% w/w.

11. The composition of claim 1, wherein said uptake increasing agent is selected from the group consisting of a bile salt, saponin, deoxycholate, sodium salicylate, sodium lauryl sulphate, oleic acid, linoleic acid, monoolein, lecithin, lysolecithin, polyoxyethylene sorbitan ester, p-t-octylphenoxypolyoxyethylene, N-lauryl- β -D-maltopyranoside, 1-dodecylazacycloheptane-2-azone, and phospholipid.

12. The composition of claim 11, wherein said uptake-increasing agent is deoxycholate at a concentration between 0.01% to 10%.

13. The composition of claim 1 comprising at least one additional ingredient selected from the group consisting of ethylenediamine tetraacetate, a preservative, an antioxidant, a colorant, a binder, a tracer, a sweetener, a surfactant, a unmoulding agent, a flavouring agent, meal, bean, yeast, brewer yeast, mineral oil, vegetable oil, animal oil, a lubricant, an ointment, and combinations thereof.

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14. The composition of claim 1, wherein said physiologically active agent when delivered in intestine of said human or animal is absorbed by said intestine for systemic delivery.

15. The composition of claim 1, wherein said physiologically active agent when delivered in intestine of said human or animal has an effective physiological effect on intestinal wall.

16. The composition of claim 1, wherein said physiologically active agent when delivered in intestine of said human or animal has a physiological effect on the content of the intestine.

17. The composition of claim 1, wherein said animal is a bird, a mammal, an insect, a crustacean, an amphibian, a reptile or a fish.

18. The composition of claim 1, wherein said physiologically active agent is capable of inducing an immune response in said human or animal against mucosal infectious diseases.

19. The composition of claim 1, wherein said modulating comprises increasing or reducing the rate of a physiological reaction.

20. A method for modulating a physiological reaction or inducing an immune response in a human or an animal comprising orally administering to said human or animal a sufficient amount of a composition as defined in claim 1.

21. The method of claim 20, wherein said physiological reaction is at least one of body growth, immune reaction, fat metabolism, or muscle synthesis.

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22. A method of systemic delivery of a physiologically active agent to a human or an animal, said method comprising orally administering to said human or animal a composition as defined in claim 1.

23. A method for enhancing body uptake of a physiologically active agent or an antigen in a human or an animal comprising orally administering to said human or animal a physiologically effective amount of a composition as defined in claim 1.

24. Use of a composition according to claim 1 in the manufacture of a drug or a food for modulating a physiological reaction or inducing an immune response in human or animal.